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Terms: 37552 (Edit Search)

#### 986327 (08) RE 37552 February 19, 2002

# UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT RE **37552**

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## February 19, 2002

System and method for power-efficient charging and discharging of a capacitive load from a single source

**INVENTOR:** Svensson, Lars - Lund, Sweden (SE); Athas, William C. - Torrance, California; Koller, Jeffrey G. - Torrance, California

**APPL-NO:** 986327 (08)

FILED-DATE: December 5, 1997

**GRANTED-DATE:** February 19, 2002

ASSIGNEE-AT-ISSUE: University of Southern California, Los Angeles, California, 02

**LEGAL-REP:** Oppenheimer Wolff & Donnelly LLP

**PUB-TYPE:** February 19, 2002 - Reissue Patent (E1)

**PUB-COUNTRY:** United States (US)

**REL-DATA:** 

Reissue of: 08/231637, April 22, 1994, PENDING 05473526, December 5, 1995

**US-MAIN-CL:** 363#60

**US-ADDL-CL:** 307#109

CL: 363, 307

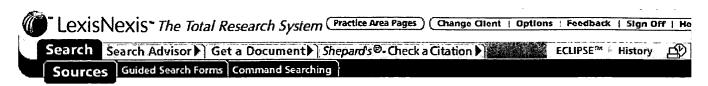
**SEARCH-FLD:** 365#60, 365#61, 365#58, 365#59, 320#166, 307#110, 307#109, 307#106

IPC-MAIN-CL: 7H 02M003#7

PRIM-EXMR: Berhane, Adolf Deneka

**REF-CITED:** 

<u>3603898</u>, September, 1971, Dawson, United States (US), 328167 <u>3654537</u>, April, 1972, Coffey, United States (US), 320001



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1/1 PLUSPAT - (C) QUESTEL-ORBIT

PN - USRE37552 E1 20020219 [USRE37552]

TI - (E1) System and method for power-efficient charging and discharging of a capacitive load from a single source

PA - (E1) UNIV SOUTHERN CALIFORNIA (US)

PAO - University of Southern California, Los Angeles CA [US]

IN - (E1) SVENSSON LARS (SE); ATHAS WILLIAM C (US); KOLLER JEFFREY G (US)

AP - US98632797 19971205 [1997US-0986327]

FD - Reissued: US231637 19940422 [1994US-0231637]

- Reissue of: US5473526 - 19951205

PR - US98632797 19971205 [1997US-0986327]

- US23163794 19940422 [1994US-0231637]

IC - (E1) H02M-003/07

EC - H02M-003/07

PCL - ORIGINAL (O): 363060000; CROSS-REFERENCE (X): 307109000

DT - Basic

- CT US3603898; US3654537; US4082430; US4107757; US4109192; US4328525; US4594589; US4605999; US4707692; US4802739; US4818981; US4862113; US4893117; US4920474; US5051668; US5063340; US5095223; US5105288; US5107136; US5126589; US5150013; US5206632; US5247376; US5264752; US5293082; US5339236; US5349366; US5459414; US5465054; US5473269; US5473526; US5506520; US5508639; US5510748; US5517145; US5521538; US5526319; US5528256; US5559463; US5559478; US5572211; US5578957; US5602497; US5604449; US5604454; US5657039; US5675263; US5694445; US5734285; US5748165; US5754156; US5818252; US5821923; US5838203; US5838289; US58841299; US5852426; US5861861; US5870331; US5800602; US5881014; US5883538; US5889439; US5892540; US5896117; US5900854
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STG - (E1) Reissue Patent

AB - A system and method for efficiently charging and discharging a capacitive load from a single voltage source. The system includes a first switch for selectively connecting the voltage source to the load and a second switch for selectively providing a short across the load as may be common in the art. A particularly novel aspect of the invention resides in the provision of plural capacitive elements and a switching mechanism for selectively connecting each of the capacitive elements to the load whereby the load is gradually charged or discharged. In the illustrative embodiment, the switching mechanism includes a set of switches for selectively connecting each of the capacitive elements to the capacitive load and a switch control mechanism for selectively activating the switches.

UP - 2002-09

1/1 LGST - (C) LEGSTAT PN - US 37552 [USRE37552]

AP - US 986327/97 19971205 [1997US-0986327]

DT - US-E

ACT - 19971205 US/AE-A

APPLICATION DATA (PATENT)

{US 986327/97 19971205 [1997US-0986327]}

- 20020219 US/E1 [+] REISSUE (PRE-GRANT)

UP - 2002-10

1/1 PAST - (C) Thomson Derwent

AN - 200208-001530

PN - 5473526 A [US5473526]

DT - A (UTILITY)
OG - 2002-02-19

CO - RE

ACT - REISSUE PATENT SH - REISSUE PATENT

RL - USRE37552

Search statement 3

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1/2 INPADOC - (C) INPADOC

PN - US 37552 E1 20020219 [US--37552]

TI - SYSTEM AND METHOD FOR POWER-EFFICIENT CHARGING AND DISCHARGING OF A CAPACITIVE LOAD FROM A SINGLE SOURCE

IN - SVENSSON LARS [SE]; ATHAS WILLIAM C [US]; KOLLER JEFFREY G [US]

PA - UNIV SOUTHERN CALIFORNIA [US]

AP - US 986327/97-A 19971205 [1997US-0986327]

PR - US 986327/97-A 19971205 [1997US-0986327]

- US 231637/94-A5 19940422 [1994US-0231637]

IC - H02M - 003/07

### 2/2 INPADOC - (C) INPADOC

PN - US 5473526 A 19951205 [US5473526]

TI - SYSTEM AND METHOD FOR POWER-EFFICIENT CHARGING AND DISCHARGING OF A CAPACITIVE LOAD FROM A SINGLE SOURCE

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PA - UNIV SOUTHERN CALIFORNIA [US]

AP - US 231637/94-A 19940422 [1994US-0231637]

PR - US 231637/94-A 19940422 [1994US-0231637]

IC - H02M - 003/07

#### 1/1 LEGALI - (C) LEGSTAT

PN - US 5473526 [US5473526]

AP - US 231637/94 19940422 [1994US-0231637]

DT - US-P

ACTE- 19940422 US/AE-A

APPLICATION DATA (PATENT)

{US 231637/94 19940422 [1994US-0231637]}

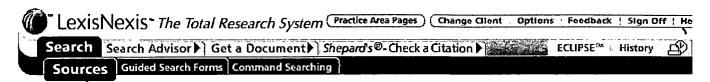
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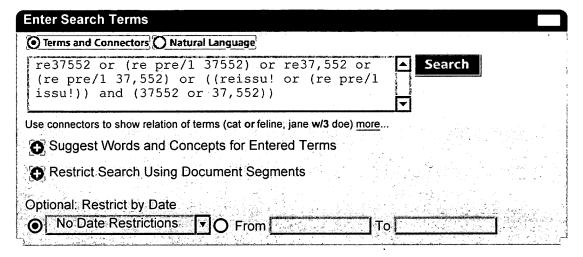
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UNIVERSITY OF SOUTHERN CALIFORNIA UNIVERSITY PARK LOS ANGELES, CA 90089 \* SVENSSON, LARS : 19940520; ATHAS, WILLIAM C. : 19940520; KOLLER, JEFFREY G. : 19940520

- 19951205 US/A PATENT
- 19960709 US/CC CERTIFICATE OF CORRECTION
- 19980922 US/RF REISSUE APPLICATION FILED 971205
- 20010306 US/RF REISSUE APPLICATION FILED 20010101
- UP 2001-10



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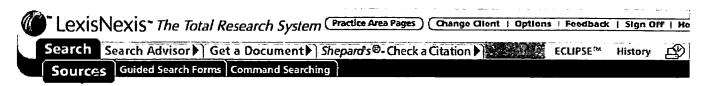
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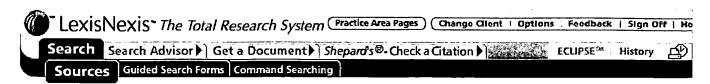
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Terms: patno=5473526 (Edit Search)

#### 231637 (08) 5473526 December 5, 1995

# UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT **5473526**

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#### Link to Claims Section

#### December 5, 1995

System and method for power-efficient charging and discharging of a capacitive load from a single source

**REISSUE:** This Patent was reissued on Feb. 19, 2002 as Reissue Patent Re 37,552.Reissue Application filed Jan. 1, 2001 (O.G. Mar. 6, 2001) Ex. Gp.: 2838; Re. S.N. 09/758,631Reissue Application filed Dec. 5, 1997 (O.G. Sep. 22, 1998) Ex. Gp.: 2838; Re. S.N. 08/986,327, (O.G. March 6, 2001)

**INVENTOR:** Svensson, Lars, Santa Monica, CA; Athas, William C., Redondo Beach, CA; Koller, Jeffrey G., Torrance, CA

CERT-CORRECTION: July 9, 1996 - a Certificate of Correction was issued for this Patent

**APPL-NO:** 231637 (08)

FILED-DATE: April 22, 1994

**GRANTED-DATE:** December 5, 1995

ASSIGNEE-AT-ISSUE: University of Southern California, Los Angeles, CA

ASSIGNEE-AFTER-ISSUE: June 17, 1994 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., UNIVERSITY OF SOUTHERN CALIFORNIA UNIVERSITY PARK LOS ANGELES, CA 90089, Reel and Frame Number: 007044/0586
May 29, 1996 - CONFIRMATORY LICENSE (SEE DOCUMENT FOR DETAILS)., DEFENSE, DEPARTMENT OF, UNITED STATES OF AMERICA ADVANCED RESEARCH PROJECTS A GENCY 3701 N. FAIRFAX DRIVE ARLINGTON VIRGINIA 22203, Reel and Frame Number: 007961/0829

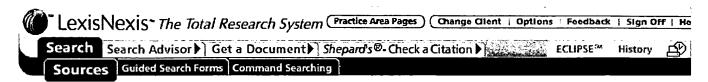
LEGAL-REP: Benman, Collins & Sawyer

**PUB-TYPE:** December 5, 1995 - Utility Patent having no previously published pre-grant publication (A)

**PUB-COUNTRY:** United States (US)

**US-MAIN-CL:** 363#60

**US-ADDL-CL:** 307#109



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 PN - US5473526 A 19951205 [US5473526]
 TI - (A) System and method for power-efficient charging and discharging of
       a capacitive load from a single source
     - (A) UNIV SOUTHERN CALIFORNIA (US)
 PAO - University of Southern California, Los Angeles CA [US]
 IN - (A) SVENSSON LARS (US); ATHAS WILLIAM C (US); KOLLER JEFFREY G (US)
 AP - US23163794 19940422 [1994US-0231637]
     - US23163794 19940422 [1994US-0231637]
 IC - (A) H02M-003/07
 EC - G05F-001/565
     - H02M-003/07
     - H02M-003/158
 PCL - ORIGINAL (O): 363060000; CROSS-REFERENCE (X): 307109000
 DT - Basic
 CT - US3603898; US5095223; US5339236
 STG - (A) United States patent
     - A system and method for efficiently charging and discharging a
       capacitive load from a single voltage source. The system includes a
       first switch for selectively connecting the voltage source to the load
       and a second switch for selectively providing a short across the load
       as may be common in the art. A particularly novel aspect of the
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       switching mechanism for selectively connecting each of the capacitive
       elements to the load whereby the load is gradually charged or
       discharged. In the illustrative embodiment, the switching mechanism
       includes a set of switches for selectively connecting each of the
       capacitive elements to the capacitive load and a switch control
       mechanism for selectively activating the switches.
 1/1 LGST - (C) LEGSTAT
     - US 5473526 [US5473526]
 AP - US 231637/94 19940422 [1994US-0231637]
 DT - US-P
 ACT - 19940422 US/AE-A
       APPLICATION DATA (PATENT)
       {US 231637/94 19940422 [1994US-0231637]}
     - 19940617 US/AS02
       ASSIGNMENT OF ASSIGNOR'S INTEREST
       UNIVERSITY OF SOUTHERN CALIFORNIA UNIVERSITY PARK LOS ANGELES, CA
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KOLLER, JEFFREY G.: 19940520

- 19951205 US/A

90089 \* SVENSSON, LARS : 19940520; ATHAS, WILLIAM C. : 19940520;

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PATENT

- 19960709 US/CC

CERTIFICATE OF CORRECTION

- 19980922 US/RF

REISSUE APPLICATION FILED

971205

- 20010306 US/RF

REISSUE APPLICATION FILED

20010101

UP - 2001-10

1/1 CRXX - (C) CLAIMS/RRX

AN - 2669778

PN - 5,473,526 A 19951205 [US5473526]

PA - Southern California, University of

PT - E (Electrical)

ACT - 19960529 REASSIGNED CONFIRMATORY LICENSE

Assignor: SOUTHERN CALIFORNIA, UNIVERSITY OF DATE SIGNED: 11/17/1994

Assignee: DEFENSE, DEPARTMENT OF, UNITED STATES OF AMERICA ADVANCED RESEARCH PROJECTS AGENCY 3701 N. FAIRFAX DRIVE ARLINGTON VIRGINIA 22203

Reel 007961/Frame 0829

Contact: ADVANCED RESEARCH PROJECTS AGENCY KAREN DELAP OFFICE OF GENERAL COUNSEL 3701 N. FAIRFAX DRIVE ARLINGTON, VA 22203

- 19971205 REISSUE REQUESTED ISSUE DATE OF O.G.: 19980922 REISSUE REQUEST NUMBER: 08/986327 EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 2838 Reissue Patent Number: USRE37552

- 20010101 REISSUE REQUESTED ISSUE DATE OF O.G.: 20010306 REISSUE REQUEST NUMBER: 09/758631

EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 2838

#### Reissue Patent Number:

UP - 1999-00

UACT- 2001-03-06

URAS- 2002-07-09

1/4 PAST - (C) Thomson Derwent

AN - 200208-001530

PN - 5473526 A [US5473526]

DT - A (UTILITY)

OG - 2002-02-19

CO - RE

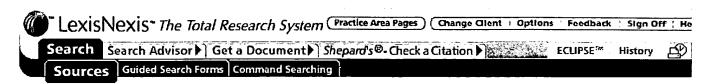
ACT - REISSUE PATENT

SH - REISSUE PATENT

RL - USRE37552

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2/4 PAST - (C) Thomson Derwent
 AN - 200110-000902
  PN - 5473526 A [US5473526]
 DT - A (UTILITY)
 OG - 2001-03-06
 CO - REA
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 SH - REISSUE APPLICATION FILED
 3/4 PAST - (C) Thomson Derwent
 AN - 199838-001282
 PN - 5473526 A [US5473526]
 DT - A (UTILITY)
 OG - 1998-09-22
 CO - REA
 ACT - REISSUE APPLICATION FILED
 SH - REISSUE APPLICATION FILED
 4/4 PAST - (C) Thomson Derwent
 AN - 199628-001248
 PN - 5473526 A [US5473526]
 DT - A (UTILITY)
 OG - 1996-07-09
 CO - COR
 ACT - CERTIFICATE OF CORRECTION
 SH - CERTIFICATE OF CORRECTION
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 PN - US 37552 E1 20020219 [US--37552]
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       CAPACITIVE LOAD FROM A SINGLE SOURCE
 IN - SVENSSON LARS [SE]; ATHAS WILLIAM C [US]; KOLLER JEFFREY G [US]
 PA - UNIV SOUTHERN CALIFORNIA [US]
 AP - US 986327/97-A 19971205 [1997US-0986327]
 PR - US 986327/97-A 19971205 [1997US-0986327]
     - US 231637/94-A5 19940422 [1994US-0231637]
 IC - H02M-003/07
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2/2 INPADOC - (C) INPADOC
PN - US 5473526 A 19951205 [US5473526]
TI - SYSTEM AND METHOD FOR POWER-EFFICIENT CHARGING AND DISCHARGING OF A
     CAPACITIVE LOAD FROM A SINGLE SOURCE
IN - SVENSSON LARS [US]; ATHAS WILLIAM C [US]; KOLLER JEFFREY G [US]
PA - UNIV SOUTHERN CALIFORNIA [US]
AP - US 231637/94-A 19940422 [1994US-0231637]
PR - US 231637/94-A 19940422 [1994US-0231637]
IC - H02M - 003/07
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PN - US 5473526 [US5473526]
AP - US 231637/94 19940422 [1994US-0231637]
DT - US-P
ACTE- 19940422 US/AE-A
     APPLICATION DATA (PATENT)
     {US 231637/94 19940422 [1994US-0231637]}
    - 19940617 US/AS02
     ASSIGNMENT OF ASSIGNOR'S INTEREST
     UNIVERSITY OF SOUTHERN CALIFORNIA UNIVERSITY PARK LOS ANGELES, CA
     90089 * SVENSSON, LARS : 19940520; ATHAS, WILLIAM C. : 19940520;
     KOLLER, JEFFREY G.: 19940520
   - 19951205 US/A
     PATENT
   - 19960709 US/CC
     CERTIFICATE OF CORRECTION
   - 19980922 US/RF
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     971205
   - 20010306 US/RF
     REISSUE APPLICATION FILED
     20010101
UP - 2001-10
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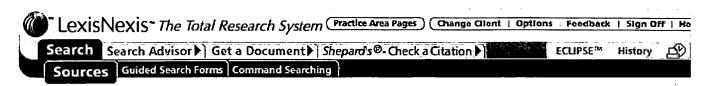
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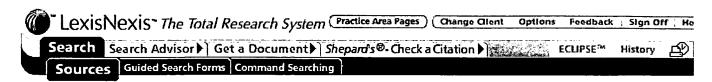
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